Nordihydroguaiaretic acid reduces postharvest berry abscission in grapes

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Abstract

The problem of berry abscission often occurs during the postharvest storage and transport of table grapes; this seriously affects the commodity value and brings major losses to growers and sellers. The objective of this study was to investigate the effects of nordihydroguaiaretic acid (NDGA, which can reduce ABA synthesis by down-regulating the expression level of *VvNCED1*), on berry abscission during storage. After NDGA treatment, the decline of berry detachment force was delayed, and the percentage of berry abscission was reduced. The expression levels of *VvNCED1* and *VvACO1* in fruit and rachis were down-regulated, and the synthesis of abscisic acid (ABA) and ethylene in fruit and rachis were decreased by NDGA treatment. The activity of pectinesterase, polygalacturonase and cellulase, the malondialdehyde content and relative conductivity were lower than in the control. NDGA treatment also delayed the decline of total soluble solids, titratable acids, vitamin C and weight loss. Our results will help researchers to characterize the mechanism responsible for berry abscission during storage and transportation.